

Water Purification & Protection

The Importance of Water

There is little doubt that water is by far one of the world's most precious resources. Not only is it crucial for the survival of life as we know it, it is becoming increasingly rare to have access to untainted and unpolluted water supplies. In order to function effectively, the human body requires large amounts of water which is obtained from food sources and direct water consumption. In order for plants to function effectively, they too require large quantities of water for the important process of photosynthesis – without which they will die. As they are our primary oxygen producers, their survival is crucial.

Australians today are fortunate to have access to plentiful water sources to fulfil our consumptive and survival needs. This is surprising given the fact that Australia hosts an often harsh and dry environment. However, with the existence of large underground reservoirs such as the Artesian Basin, Australia's water supply is more than adequate. Although this is the case, it is still vital that we don't over-consume our supply of fresh, unpolluted water.

Water on South Stradbroke Island

South Stradbroke Island hosts fresh groundwater at a maximum height of approximately three metres at the centre of the island. This water supply, which is recharged by rainfall, is termed an unconfined freshwater aquifer and its directional flow is typically from the island's centre to the east and to the west. It is this water that is being utilised by both Couran Cove Island Resort and other households and campsites on the island.

Water & Couran Cove Island Resort

Couran Cove Island Resort recognises and understands the threats associated with groundwater usage over an extended period of time (such as pollution, contamination and over consumption). As a result, a groundwater specialist consulting group, Douglas Partners, was brought in to develop and implement ways the resort could use this water supply in a sustainable manner.

Extraction

In order to use the island's freshwater supply, it first needs to be extracted. This is done via a bore system, however, instead of a single bore, two bores have been installed.

The benefit of two bores is that they can be alternated, which eliminates the coning effect of the water table that often results by continual extraction from a single bore.

Treatment

Couran Cove Island Resort has installed state of the art reverse osmosis and nano filtration treatment systems that produces ultra clean drinking water, far superior in quality to rainwater and most bottled waters. The process of reverse osmosis and nano filtration involves water flowing along membrane surfaces under pressure. Basically, the water permeates the membrane which effectively strips the water of pollutants and contaminants.

Pre-filtration

This is the initial treatment of the water once it reaches the water treatment plant. This section comprises of four mixed media filters that contain several layers of different sized particles of sand and gravel.

Micro-filtration

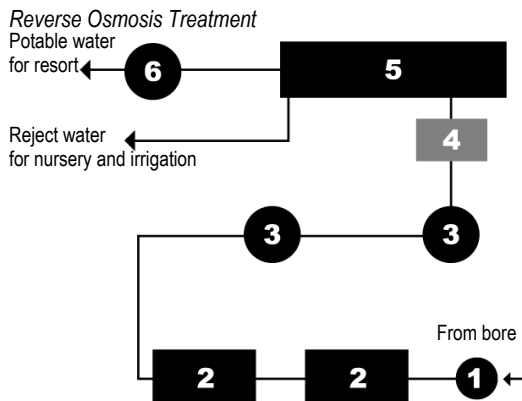
This part of the treatment system is comprised of four micro filters which further filter the water by passing it through a series of membranes of varying sizes (5 micron and 1 micron respectively).

Ultra Violet Disinfection

Although it is a requirement that chlorine be added to water, Couran Cove Island Resort wanted to reduce the amount needed for the disinfection process of its treated water. Therefore, a very simple yet effective system was implemented – ultra violet disinfection. This process uses only the light emitted from a UV tube and is therefore minimising the need to use excessive amounts of harsh chemicals such as chlorine.

Nano-filtration

As mentioned above, this form of filtration involves the flow of water, under pressure across a membrane. After the water has been filtered through this final process, small amounts of chlorine are added (0.3mg/L residual) before being reticulated throughout the resort for use in the kitchens, accommodation and operations areas.



Key

- 1 – 60,000L storage tank
- 2 – Pre-filtration (multi media)
- 3 – 1 and 5 micron filtration
- 4 – Ultra violet light disinfection
- 5 – Nano filtration
- 6 – Chlorine treatment

This form of filtration provides a very high standard and quality of drinking water by removing pollutants such as salts, micro-organisms, pesticides, bacteria, sediment, phosphates, sulphates, lead, arsenic, sodium, calcium and magnesium. It is an extremely cost efficient and energy efficient process and is the most state of the art water treatment system currently available. It provides one of the most pure and unpolluted sources of water for everyday use at a fraction of the energy expenditure and cost of regular filtration and distillation processes.

Other Water Conservation Initiatives Couran Cove Island Resort

Financial Incentive

In addition to the above treatment, all Couran Cove Island Resort guests are encouraged to minimise their water usage throughout their stay. This is achieved via the in-house TV system whereby they can visually monitor their water usage over 24 hour periods. A water usage target (or Ecotarget) is pre-set for each individual room throughout the resort in the form of a bar chart which can be viewed at any time on the rooms TV monitor. Against this pre-set target another bar is included showing the level of

actual water usage by the occupants of that room. Guests can learn to save water at home, save money and the environment.

Golf Course

Couran Cove Island Resort is adamant that a golf course will never be constructed at the resort, which results purely from the environmental ramifications of doing so. Apart from land clearing and the introduction of excessive turf, an enormous amount of water is required for maintenance and up keep. This is something the resort's water supply simply could not sustain whilst still supplying water for the natural environment and the resort itself.

Taps & Showerheads

All the resorts taps and showerheads have been fitted with water saving devices in order to help minimise any excessive water use.

Laundry

There is no advertised laundry service available on site at the resort, instead all laundering is carried out at specialist laundrers on the mainland. This decision has come about for two reasons, firstly, the amount of water required for even the most efficient washers is quite excessive. Secondly, washing detergents contain high levels of phosphates, which are a major source of water pollution.

Couran Cove Island Resort fully understands the importance of water conservation and it is hoped that guests also adopt the resort's environmental ethics and philosophies long after they have completed their holiday. There are numerous practices that individuals can apply to their everyday lives that can reduce water use, some of these are as follows:

- When brushing your teeth, turn off the tap.
- Try turning the shower off when washing your hair, you'll save litres of water.
- Wait until the dishwasher is full before turning it on.
- Water your garden at night, this is when plants need water the most and you don't lose it all to evaporation.
- Wash your car on the lawn – this ensures that the water isn't washed away into drains, where it could exacerbate pollution of water ways.
- Instead of hosing pathways, simply use a broom. It may be a bit harder work, but it will save considerably on water use.
- Try having shorter showers.
- Ask your plumber to install water saving devices in your taps and showerheads.
- Use the half-flush button on your toilet.
- When planting your garden employ the system of companion planting (plants with similar water requirements)

